

WHAT IS CLAIMED IS:

1. A system for processing image data representing biometric data, comprising:

a receiving module for receiving image data captured in a first coordinate system; and

a coordinate conversion module coupled to the receiving module for converting the image data captured in the first coordinate system to converted image data in a second coordinate system.

2. The system of claim 1 further comprising a memory coupled to the coordinate conversion module.

3. The system of claim 1 wherein the second coordinate system is a rectangular coordinate system.

4. The system of claim 2 wherein the first coordinate system is a polar coordinate system.

5. The system of claim 1 further comprising a scanning and capturing system coupled to the receiving module wherein the scanning and capturing system comprises:

a non-planar prism; and

a scanning imaging system optically coupled to the non-planar prism for capturing image data in a first coordinate system and for communicating the image data to the receiving module.

6. The system of claim 4 wherein the scanning and capturing system is coupled to the receiving module via a data network.

7. The system of claim 5 wherein the second coordinate system is a rectangular coordinate system.

8. The system of claim 7 wherein the first coordinate system is a polar coordinate system.

9. A system for processing image data representing biometric data, comprising:

- a non-planar prism;
- a scanning imaging system optically coupled to the non-planar prism for capturing the image data in a first coordinate system; and
- an image conversion system coupled to the scanning imaging system for converting the image data captured in the first coordinate system to converted image data in a second coordinate system.

10. The system of claim 9 wherein the image conversion system includes:

- a receiving module for receiving image data captured in a first coordinate system; and
- a coordinate conversion module coupled to the receiving module for converting the image data captured in the first coordinate system to converted image data in a second coordinate system.

11. The system of claim 10 wherein the image conversion system further comprises a memory coupled to the coordinate conversion module.

12. The system of claim 11 wherein the second coordinate system is a rectangular coordinate system.

13. The system of claim 12 wherein the first coordinate system is a polar coordinate system.

14. The system of claim 11 wherein the non-planar prism is a conical prism.

15. A system for processing image data representing biometric data, comprising:

- a biometric imaging system comprising:

a non-planar prism,  
an scanning imaging system optically coupled to the non-planar prism for capturing the image data in a first coordinate system, and  
a first image conversion system coupled to the scanning imaging system for generating and storing conversion data; and  
a second image conversion system coupled to the biometric imaging system for converting the image data captured in the first coordinate system to converted image data in a second coordinate system.

16. The system of claim 15 wherein the first image conversion system includes:

a receiving module for receiving image data captured in a first coordinate system; and

a coordinate conversion module coupled to the receiving module for converting the image data captured in the first coordinate system to converted image data in a second coordinate system.

17. The system of claim 16 wherein the second image conversion system includes:

a receiving module for receiving image data captured in a first coordinate system; and

a coordinate conversion module coupled to the receiving module for converting the image data captured in the first coordinate system to converted image data in a second coordinate system.

18. The system of claim 15 wherein the second coordinate system is a rectangular coordinate system.

19. The system of claim 18 wherein the first coordinate system is a polar coordinate system.

20. A system for processing image data representing biometric data, comprising:

means for converting image data captured in a first coordinate system to converted image data in a second coordinate system.

21. The system of claim 20 wherein the second coordinate system is a rectangular coordinate system.

22. The system of claim 21 wherein the first coordinate system is a polar coordinate system.

23. A method for processing image data representing biometric data comprising:

receiving the image data captured in a first coordinate system and storing the captured image data; and

converting the captured image data in the first coordinate system to converted image data in a second coordinate system.

24. The method of claim 23, wherein the converting comprises using a rectangular coordinate system as the second coordinate system.

25. The method of claim 24, wherein the first coordinate system is a polar coordinate system.

26. The method of claim 23, further comprising:

generating and storing a conversion data array including coordinate and offset data.

27. The method of claim 23, further comprising:

prior to receiving captured image data, receiving criteria associated with specifications for processing the captured image data; and

generating and storing at least conversion data array corresponding to the received criteria.

28. The method of claim 27 further comprising generating and storing at least one conversion parameter corresponding to the received criteria.

29. The method of claim 27 wherein one of the at least one conversion parameter includes a parameter indicating the interpolation method.

30. The method of claim 27 wherein each of the at least one conversion data array is generated dynamically.

31. The method of claim 23, wherein said converting comprises:  
for each pixel in an output rectangular area, the steps of:  
performing a look up to obtain conversion data including the coordinate data and the offset data associated with respective pixel coordinates;  
retrieving at least one sample of stored captured image data;  
and  
interpolating each retrieved sample with weighting based on the looked up offset data to obtain a respective pixel value in the second coordinate system.

32. A method for processing image data representing biometric data in a system having a scanning and capturing system and an image conversion system, comprising:  
generating and storing conversion data in the image conversion system;  
capturing in the scanning and capturing system the image data in a first coordinate system;  
communicating the captured first coordinate system image data to the image conversion system; and  
converting the captured first coordinate system image data to converted image data in a second coordinate system.

33. The method of claim 32, wherein the capturing comprises using a polar coordinate system as the first coordinate system.

34. The method of claim 33, wherein the converting comprises using a rectangular coordinate system as the second coordinate system.

35. The method of claim 32, wherein said converting comprises:  
for each pixel in an output rectangular area, the steps of:  
performing a look up in a conversion data array to obtain conversion data including the coordinate data and the offset data associated with respective pixel coordinates;  
retrieving at least one sample of stored captured image data;  
and  
interpolating each retrieved sample with weighting based on the looked up offset data to obtain a respective pixel value in the second coordinate system.

36. The method of claim 35 wherein the step of interpolating each retrieved sample includes calculating the weighting.

37. The method of claim 35 wherein the step of interpolating each retrieved sample includes performing a look up to determine the weighting.

38. A method for processing image data representing biometric data comprising:  
capturing the image data in a first coordinate system; and  
converting the captured image data in the first coordinate system to converted image data in a second coordinate system.

39. The method of claim 38, wherein the capturing comprises using a polar coordinate system as the first coordinate system.

40. The method of claim 38, wherein the converting comprises using a rectangular coordinate system as the second coordinate system.

41. The method of claim 40, further comprising:  
generating and storing conversion data including polar coordinate and polar offset data.
42. The method of claim 41, wherein said converting comprises:  
for each pixel in an output rectangular area, the steps of:  
performing a look up to obtain conversion data including the polar coordinate data and the offset data associated with respective pixel coordinates;  
retrieving at least one sample of stored polar space image data;  
and  
interpolating each retrieved sample with weighting based on the looked up polar offset data to obtain a respective pixel value in rectangular image space.